

Application No. 09/857,305
Amtd. dated September 8, 2006
Reply to Office Action of June 8, 2006

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Having regard thereto, it is submitted that claims 19, 22 and 24 to 28 are no longer open to provisional rejection under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19, 20, 22 and 24 to 28 of co-pending Application no. 10/699,683 and hence the rejection should be withdrawn.

The Examiner rejected claims 19, 22, 24, 25, 27 and 28 under 35 U.S.C. 102(e) as being anticipated by Murdin et al U.S. Patent nos. 6,693,087 or 6,686,339. Reconsideration is requested.

The Examiner states that:

"Murdin et al., for example 6,696,087 (the Examiner means 6,693,087) discloses a nucleic acid molecule encoding an outer membrane protein (MOMP) of a strain of *Chlamydia* (abstract)."

The abstract of Murdin et al 6,693,087 states:

"An isolated and purified nucleic acid molecule encoding a POMP91A protein of a strain of *Chlamydia*..." (emphasis added)

The abstract does not mention MOMP but rather a quite different protein of *Chlamydia*. Similarly, the "Abstract" of Murdin et al 6,686,339 states:

"....method of nucleic acid,... immunization of a host,...employing a vector, containing a nucleotide sequence encoding an inclusion membrane protein C of a strain of *Chlamydia*...." (emphasis added)

This inclusion membrane protein C to which Murdin et al 6,686,339 relates is a further, different protein from MOMP.

Enclosed for the Examiner's consideration is a sequence comparison for the amino acid sequences from the MOMP, POMP91A and InC proteins of *Chlamydia pneumoniae*. The sequence comparison was prepared using the CLUSTAL W (1.83) multiple sequence alignment at the default settings. For the

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convenience of the Examiner, enclosed are the annotated sequences used to prepare the alignments. It can be seen that there is no similarity among the three sequences.

The Examiner does not indicate in the Office Action wherein is the Murdin et al reference there is disclosed a vector comprising a nucleic acid molecule encoding MOMP. It is submitted that the only vectors disclosed are molecules containing the nucleic acid molecule encoding POMP91 (US 6,693,087) or encoding inclusion membrane protein C (US 6,686,339).

Accordingly, it is submitted that applicant's pending claims are not anticipated by either Murdin et al reference and hence the rejection of claims 19, 22, 24, 25, 27 and 28 under 35 U.S.C.102(e) as being anticipated by Murdin et al (6,693,087 or 6,686,339), should be withdrawn.

The Examiner rejected claim 26 under 35 U.S.C. 103(a) over Murdin et al. (6,693,087 or 6,686,339) as applied to claims 19, 22, 24, 25, 27 and 28 and further in view of Brunham (WO 98/02546). Claim 26 is dependent, indirectly, on claim 19 and recites that the plasmid vector is pcDNA3/MOMP.

The Murdin et al references have been discussed above. As set forth in that discussion, the Murdin et al reference does not disclose a vector comprising a nucleic acid molecule encoding MOMP.

Brunham describes the vector pcDNA3/MOMP, there is no motivation provided by Brunham or Murdin et al to substitute this vector for the vectors described in Murdin in an attenuated bacterium environment.

Accordingly, it is submitted that claim 26 is patentable over the applied art and hence the rejection thereof under 35 U.S.C. 103(a) as being unpatentable over either Murdin et al reference in view of Brunham, should be withdrawn.

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It is believed that this application is now in condition for allowance and
early and favourable consideration and allowance are respectfully solicited.

Respectfully submitted,

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! Sequence: momp
! Sequence: incC
! Sequence: pomp91a
CLUSTAL W (1.83) multiple sequence alignment

momp	-----		
incC	-----	MHQMRILWGFLFLSSFCQVSYLRANDVLLPLSGIHSGEDLELFTLRSSSPTKTTYSLRKDF	
pomp91a	-----		
momp	-----	MKKLLLKVSLVFAALSSASSLQALPVG--	
incC	-----	MTSPPIPFEQ--	
pomp91a	IVCDFAGNSIHKPGAAFLNLKGDLFFINSTPLAALTFKNITHLGARGAGLFSESNVTFKGL	.	
momp	-----	NPAEPSLMIDGILWEGFGGDPDCPDCATWCDAISMARVGYYGDFV	
incC	-----	SSGDASFLAEQPQQLPSTSISQLVTQLLTMMKHQTALSETVLQQ	
pomp91a	HSLVLENNESWGGLTSGDLSFINNTSVLCQNNISYGPGGALLQGRKSKALFFRDNRG	.	
momp	-----	... : * : :	
incC	-----		
pomp91a	D8VLKTDVNKEFQMGAKPTTDGTGNSAAPS	--	
	QRDRRLPTASIILOVGGAPGGAGAPFQPG	--	
	TILFLKNKAVNQDESHPGYGGAVSSISPGSPITFADNQEILFQENEELGGAIYNDQGAI		
momp	-----	TLTARENPAYGRHMQDAEMFTNAACMALNIWDR--	
incC	-----	PADDHHHPIPPPVVPAQIETEITTIRSELQLMR--	
pomp91a	TFENNFOQTSFFSNKASFEELSIATAISIHSGAIPYSLKTLQKLGGAIHADYVHIRDC	.	
momp	-----	FDVFCCTLGATSGYLKGNASFNLVGLFGDNENQKTVKAESVPNMSFDQSVELYTDTT	
incC	-----	STLQQSTKGARTGVLUVTAILMTISLLAIIIIILAVLGF	
pomp91a	HGSIVFEENSATAGGAIAVNAVCDINAQGFVRFINNSALGNGGAIYMQATGSILRLHAN	.	
momp	-----	: : * : : : : : :	
incC	-----	FAWSVGARAALWECCGATLG--	
pomp91a	GDIEFCGNKVRSQFHSHINSTSNFTNNAITIQGAPREFSLSANEGHRICFYDPIISATE	.	
momp	-----	LIWAMVSGSIIICFIALIG--	
incC	-----		
pomp91a	NYNSLYINHQLLEAGGAVIFSGARLSPEHKKENKNKTSIINQPVRICSGVLSIEGGAIL		
momp	-----	ASFOYAQSXPKEVEELNVLCAAEF	
incC	-----	TLGLILTNKNTPLPAS--	
pomp91a	AVRSFYQEGGLLALGPGSKLTTQGKONSEKDKitVNLGFNLENLDSSDPAEIRATEKASI	.	
momp	-----		
incC	-----		
pomp91a	TINKPKGYVGKEFPLQTAGTDAATG	--	
momp	-----	EISGVPRVYGHTESFYENHEYASKPYTTSIILSAKKLVTAPSREKDIONLIIAESEYMG	
incC	-----		
pomp91a	TKDASIDYHEWQASLALSYRLNMFTPYIGVKWSRASFDADDIRIA		
momp	-----	YGYQGSWEFSWPNDTKEKTIIASWTPPTGEFLDPKRGRSFIPPTLWSTF3GLNIAASNI	
incC	-----	QPKSATAIFDTTLNPTIAGAGDVKTGAEGOLGDTMQIVSLQLNKMRSRKSCGIAVGTTI	
pomp91a			
momp	-----		
incC	-----		

pomp91a	VNNNNYLNNSEVIPLQHLCVFGGPVYQIMEQNPKQSSNNLLVQHAGHNVCARIFFSFNTIL
momp incC pomp91a	VGADKYAVTVETRLIDERAHHVNAQFRF----- --SAALTQLFSSSSQQNVADKSHAQILIGTVSLNKSWQALSLRSSFSTEDSQVMKHVFVYK
momp incC pomp91a	--GWSRGSWRNNGWWSGVGMSYAPKGIRYLKMTPFVDLQYTKLVQNPFVETGYDPRYFSSS
momp incC pomp91a	--EUTNLSLPIGIALEMRFIGSRSSLFLQVTSYIKOLRRVNPOSSASLVLNHYTWDIQGVP
momp incC pomp91a	--LKEALNITLNSTIKYKIVTAYMGISSTQREGSNLSANAHAGLSLF

"**" means that the residues or nucleotides in that column are identical in all sequences in the alignment

"." means that conserved substitutions have been observed

"-" means that semi-conserved substitutions are observed

6693087pomp91a seq
947 aa

LOCUS AAS37561 | **DEFINITION** Sequence from patent US 6693087.

ACCESSION AAS37561 | **VERSION** AAS37561.1 | **DBSOURCE** GI:42715796 accession AAS37561.1

KEYWORDS .

SOURCE Unknown.

ORGANISM Unknown.
Unclassified.

REFERENCE 1 (residues 1 to 947)

AUTHORS Murdin,A.D., Dunn,P.L. and Oomen,R.P.

TITLE Nucleic acid molecules encoding POMP91A protein of Chlamydia

JOURNAL Patent: US 6693087-A 3 17-FEB-2004;
Aventis Pasteur Limited; Toronto;

CAX;

REMARK CAMBIA Patent Lens: US 6693087

FEATURES Location/Qualifiers

source 1..947
/organism="unknown"

ORIGIN

1	mkqmrlwqf	flssfcgvsv lrandvllpl sgihsgedle lftlrrsssp tktyslrkdf
61	ivcdfagnsi	hkgpaafnl kgdffinst pfaaltfkni hlgargaglf sesnvtfkgl
121	hsvlennnes	wggvltsqd lsfinntsvl cgnnisygpg gal11qgrks kalffrdnrg
181	tilflknkav	ndeshppgyg gavssispgs pitfadnqe1 fgenegelg gaiyndqgai hadyvhirdc
241	tfennfqtt	ffsnkasfee lsiaataisi hsgaipyslk t11qk1ggai tgsilrlhan
301	kgsivfeens	ataggaiavn avcdinaaqgp vrfinnnsalg lnggaiymqa
361	qgdiefcgnk	vrsqfhshin stsnftnnai tiqqaprefs lsaneghric fydpisate
421	nynslyinhq	rlleaggavi fsgarlspeh kkenknktsi inqpvr1csg vlsieggail
481	ayrsfyqeqg	llalopgskl ttqgknsek d kivitnlgfn len1dssdp eiratekasi
541	eisgvprvyg	htesfyenhe yaskpyttsi ilsakk1vta psrpekd1qn liaeseymg
601	ygyqqswefs	wspndtkek tiaswtp1tg efsldpkrrg sfipttlwst fs1niasm1
661	vnnylnnse	viplqh1cvf ogpvqgimeq npkqssnn1 vqaghnhvga ripfsfntil
721	saaltqlfss	ssqqnvadks haqiligtvs lnkswqals1 rssfsyteds qvmkhvfpyk
781	gtsrgswrny	gwsgsvgmsy aypkgirylk mtpfvdlqyt k1vqnnpfvet gydpryfsss
841	emtnls1plig	ialemrfigs rsslflqvst syikdlrrvn pqssas1vln hytwdiqqvp
901	lgkealn1tl	nstikyk1v1 aymgisstqr egsnlsanah ag1s1sf

6686339incc seq
203 aa
LOCUS AAS33023
DEFINITION Sequence from patent US 6686339.
ACCESSION AAS33023
VERSION AAS33023.1 GI:42707452
DBSOURCE accession AAS33023.1
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1. (residues 1 to 203)
AUTHORS Murdin,A.B., Dunn,P.L. and Oomen,R.P.
TITLE Nucleic acid molecules encoding inclusion membrane protein C of
Chlamydia
JOURNAL Patent: US 6686339-A 3 03-FEB-2004;
Aventis Pasteur Limited; Toronto;
CAX;
REMARK CAMBIA Patent Lens: US 6686339
FEATURES Location/Qualifiers
source 1..203
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ORIGIN
1 mtspipfqss gdasflaeqp qqlpstsesq lvtql1tmmk htgalsetv] qqqrdrlpta
61 s1ilqvggap tggagapfqp gpaddhhhp1 pppvvpaqie teittirse1 qlmrstlqqs
121 tkgartgv1v vtailmtisi1 laiiiiilav lgftgv1pqv allmqgetn1 iwamvsgsii
181 cfialigtlg liltlnkntp1 pas

stephens momp
393 aa linear BCT 02-MAY-2006

LOCUS Q46409
DEFINITION Major outer membrane protein, serovar D precursor (MOMP).
ACCESSION Q46409
VERSION Q46409 GI:6707730
DBSOURCE swissprot; locus OM1D_CHLTR, accession Q46409;
 class: standard.
 created: May 30, 2000.
 sequence updated: Nov 1, 1996.
 annotation updated: May 2, 2006.
 xrefs: X62918.1, CAA44701.1, AF063195.2, AAC31436.2, AE001273.1,
 AAC68276.1, H71484
 xrefs (non-sequence databases): PHCI-2DPAGE:Q46409,
 GenomeReviews:AE001273_GR, InterPro:IPR000604, Pfam:PF01308,
 PRINTS:PRO1334
KEYWORDS Complete proteome; Ion transport; Membrane; Outer membrane; Porin;
 Signal; Transmembrane; Transport.
SOURCE
ORGANISM Chlamydia trachomatis
 Chlamydia trachomatis
 Bacteria; Chlamydiae; Chlamydiales; Chlamydiaceae; Chlamydia.
REFERENCE
AUTHORS Sayada,C., Denamur,E. and Elion,J.
TITLE Complete sequence of the major outer membrane protein-encoding gene
 of Chlamydia trachomatis serovar Da
JOURNAL Gene 120 (1), 129-130 (1992)
PUBMED 1398119
REMARK NUCLEOTIDE SEQUENCE [GENOMIC DNA].
 STRAIN=D/B-120
REFERENCE
AUTHORS Stothard,P.R., Boguslawski,G. and Jones,R.B.
TITLE Phylogenetic analysis of the Chlamydia trachomatis major outer
 membrane protein and examination of potential pathogenic
 determinants
JOURNAL Infect. Immun. 66 (8), 3618-3625 (1998)
PUBMED 9673241
REMARK NUCLEOTIDE SEQUENCE [GENOMIC DNA].
 STRAIN=D/IU-71960
REFERENCE
AUTHORS Stephens,R.S., Kalman,S., Lammel,C., Fan,J., Marathe,R.,
 Aravind,L., Mitchell,W., Olinger,L., Tatusov,R.L., Zhao,Q.,
 Koonin,E.V. and Davis,R.W.
TITLE Genome sequence of an obligate intracellular pathogen of humans:
 Chlamydia trachomatis
JOURNAL Science 282 (5389), 754-759 (1998)
PUBMED 9784136
REMARK NUCLEOTIDE SEQUENCE [LARGE SCALE GENOMIC DNA].
 STRAIN=D/UW-3/CX
COMMENT On Sep 27, 2005 this sequence version replaced gi:7442973.
 [FUNCTION] Structural rigidity of the outer membrane of elementary
 bodies and porin forming, permitting diffusion of solutes through
 the intracellular reticulate body membrane.
 [SUBUNIT] Disulfide bond interactions within and between MOMP
 molecules and other components form high molecular-weight
 oligomers.
 [SUBCELLULAR LOCATION] Bacterial cell outer membrane; multi-pass
 membrane protein.
 [SIMILARITY] Belongs to the chlamydial OMP family.
FEATURES
source Location/Qualifiers
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 /db_xref="taxon:813"
gene
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 /locus_tag="CT_681"

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stephens momp
/note="synonym: omp1"
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/locus_tag="CT_681"
/product="Major outer membrane protein, serovar D
precursor"
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/inference="non-experimental evidence, no additional
details recorded"
/note="By similarity."
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/gene="ompA"
/locus_tag="CT_681"
/region_name="Mature chain"
/experiment="experimental evidence, no additional details
recorded"
/note="Major outer membrane protein, serovar D.
/FTId=PRO_0000020147."
Region
ORIGIN
1 mkkllksvvlv faalssassl qalpvgnpae pslmidgilw egfggdpcdp catwcdaism
61 rvgyyggdfvf drvlktvdnk efqmgakptt dtgnsaapst ltarenpayg rhmqdaemft
121 naacmalnwi drfdvfctlg atsgylkngs asfnlvglfg dnenkktvka esvpnmsfdq
181 svvelytdtt Fawsvgaraa lweccatlg asfqyaqskp kveelnvlcn aaeftinkpk
241 gyvgkefpold ltagtdaatg tkdasidyhe wqasalalsyr lnmfptpyigv kwsrasfdad
301 tiriqaqpksa taifdtttlnt ptiagagdvk tgaegqlgdt mqivs1qlnlk mksrkscgia
361 vgttivdadk yavtvetrl derahvnaq frf

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